

## **MULTIPLE-ACCESS HYBRID OFDM-CDMA SYSTEM**

### **ABSTRACT**

In one aspect of a multiple-access OFDM-CDMA system, the data spreading is performed in the frequency domain by spreading each data stream with a respective spreading code selected from a set of available spreading codes. To support multiple access, system resources may be allocated and de-allocated to users (e.g., spreading codes may be assigned to users as needed, and transmit power may be allocated to users). Variable rate data for each user may be supported via a combination of spreading adjustment and transmit power scaling. Interference control techniques are also provided to improve system performance via power control of the downlink and/or uplink transmissions to achieve the desired level of performance while minimizing interference. A pilot may be transmitted by each transmitter unit to assist the receiver units perform acquisition, timing synchronization, carrier recovery, handoff, channel estimation, coherent data demodulation, and so on.